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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,042	07/11/2003	Hiroshi Mori	AD6894USNA	6916

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WILMINGTON, DE 19805

EXAMINER

PIAZZA CORCORAN, GLADYS JOSEFINA

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/618,042	MORI, HIROSHI	
	Examiner	Art Unit	
	Gladys JP Corcoran	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

FINAL ACTION

Election/Restrictions

1. Applicant's election of Group I claims 1-8 in the reply filed on November 16, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement and Applicant has cancelled the non-elected claim, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Objections

2. Claim 4 is objected to because of the following informalities: In Claim 4, line 6, "are the different" should be --are different--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Jones (WO 00/20157).

Jones discloses a laser transmission welding method for welding together a laser beam transparent plastic article (1) with a laser beam opaque plastic article (2) by positioning the articles in contact with each other so as to define a junction (3) there between and transmitting a laser beam (4) focused on the area of contact thus causing the junction to be melted without decomposition and joining together the plastic articles (Figure 1, page 6, line 22 to page 7, line 15). Jones further discloses operating the laser within the ranges as claimed: the laser power is not greater than 100W (between 10W and 500W; page 7, lines 35-37), the scanning speed is not greater than 1000 cm/min (between 5-200 mm/sec = 30-1200 cm/min; page 7, lines 35-37), and the laser beam has a wavelength ranging from 800 to 1200 nm (780 to 1500nm; page 6, lines 6-10; page 7, lines 18-20). Jones also discloses that the plastic articles can be a variety of plastics including polyester (page 11, lines 10-13). Consequently, since Jones discloses operating the laser with parameters that encompass the claimed ranges, Jones is considered to meet all the limitations of the claim. It is further noted that the power of the laser in all the examples is performed at a power not greater than 100W (all at 100W; page 10) and the scanning speeds are all not greater than 1000 cm/min (10 to 100cm/min or 50 to 200 cm/min; page 10).

In the alternative, it would have been obvious to one of ordinary skill in the art at the time the invention was made when laser welding polyester articles in the method of Jones to utilize a laser beam energy not greater than 100 W or even 70 W (for claim 3) and a speed of not greater than 1000 cm/min or 300 cm/min (for claims 2 and 3). Particularly since all the examples show speeds of less than 300 cm/min. One of

ordinary skill in the art would have readily appreciated that the parameters listed in Jones would vary from plastic material to plastic material and would have readily appreciated finding the optimum parameters for the welding of polyester articles in order to provide the strongest bond, only the expected results would be attained.

6. Claims 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (WO 00/20157) as applied to claims 1-3 above, and further in view of Ruotsalainen (U.S. Patent 6,802,929).

As to claims 4 and 5, Jones discloses that the articles welded together may be of the same material or different materials (page 5, lines 1-5; pages 10 and 11) but does not particularly disclose the specific types of polyesters that are transmission laser welded together. It is considered well known and conventional to laser weld polyesters such as polyethylene terephthalate (PET) and polybutylene terephthalate (PBT), as shown for example in Ruotsalainen (Column 3, lines 28-37). Furthermore, one skilled in the art would have readily appreciated welding either different polyesters or the same polyesters together, only the expected results would be attained. It would have been obvious to one of ordinary skill in the art at the time the invention was made to laser weld a PET article to a PBT article in the method of Jones, as Jones discloses using the welding method to weld polyester materials and such polyesters are considered conventional in the art as further exemplified by Ruotsalainen.

Regarding claims 6-8, Jones discloses providing a pigment or a dye as the radiation absorber but does not specifically disclose carbon black or nigrosine dye or a combination thereof to the opaque article as the pigment or dye, however both are

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conventional radiation absorber additives. Furthermore, one of ordinary skill in the art would have readily appreciated determining the necessary amount of additive to add to achieve the desired radiation absorption effect. It would have been obvious to use such conventional materials as the radiation absorber and to add them in the appropriate amount.

7. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being obvious over Koshida (WO 02/057353) in view of Jones (WO 00/20157).

The applied reference (Koshida) has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Koshida discloses a laser transmission welding method for joining a laser beam transparent plastic article with a laser beam opaque plastic article wherein a laser beam is directed through the laser beam transparent article to the laser beam opaque article, which has a radiation absorber mixed therein, wherein the laser beam opaque article absorbs the laser radiation and is heated causing the junction of the articles to melt and join together (page 1, line 30 to page 2, line 2). Koshida teaches the articles are preferably polyester resins (page 6, lines 16-20). Koshida is silent towards the laser beam energy and scanning speed.

Jones discloses a laser transmission welding method for welding together a laser beam transparent plastic article (1) with a laser beam opaque plastic article (2) by positioning the articles in contact with each other so as to define a junction (3) there between and transmitting a laser beam (4) focused on the area of contact thus causing the junction to be melted without decomposition and joining together the plastic articles (Figure 1, page 6, line 22 to page 7, line 15). Jones further discloses operating the laser within the ranges as claimed: the laser power is not greater than 100W (between 10W and 500W; page 7, lines 35-37), the scanning speed is not greater than 1000 cm/min (between 5-200 mm/sec = 30-1200 cm/min; page 7, lines 35-37), and the laser beam has a wavelength ranging from 800 to 1200 nm (780 to 1500nm; page 6, lines 6-10; page 7, lines 18-20). Jones also discloses that the plastic articles can be a variety of plastics including polyester (page 11, lines 10-13). Consequently, since Jones discloses operating the laser with parameters that encompass the claimed ranges, Jones is considered to meet all the limitations of the claim. It is further noted that the

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power of the laser in all the examples is performed at a power not greater than 100W (all at 100W; page 10) and the scanning speeds are all not greater than 1000 cm/min (10 to 100cm/min or 50 to 200 cm/min; page 10).

One of ordinary skill in the art would have readily appreciated that the parameters listed in Jones would vary from plastic material to plastic material and would have readily appreciated finding the optimum parameters for the welding of polyester articles. It would have been obvious to one of ordinary skill in the art at the time the invention was made when laser welding polyester articles in the method of Koshida to utilize a laser beam energy not greater than 100 W or 70 W and a speed of not greater than 1000 cm/min or 300 cm/min.

Regarding claims 4 and 5, Koshida teaches laser welding polyesters such as polyethylene terephthalate (PET) and polybutylene terephthalate (PBT) (page 7, lines 6-21) and that the transmitting resin and opaque resin can be the same or different (page 6, lines 9-10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to laser weld a PET article to a PBT article in the method of Koshida or two PET articles or two PBT articles, only the expected results would be attained.

Regarding claims 6-8, Koshida teaches adding carbon black or nigrosine dye or a combination thereof to the opaque article as the radiation absorber (page 12, lines 26-34). One of ordinary skill in the art would have readily appreciated determining the necessary amount of additive to add to achieve the desired radiation absorption effect.

It would have been obvious to use such conventional materials as the radiation absorber and to add them in the appropriate amount.

Response to Arguments

8. Applicant's arguments filed November 16, 2005 have been fully considered but they are not persuasive.

Applicant argues on page 4 that the reference Jones is broad and that claim 1 limits the laser beam energy and the scanning speed and wavelength to obtain high weld strengths in polyesters. Firstly, all the parameters are within the ranges as disclosed by Jones. Secondly, all the examples in Jones use energy amounts and scanning speeds that meet the limitations of the values as claimed, therefore these are considered preferred energy amounts and scanning speeds. Finally, the range claimed for the wavelength is the conventional wavelength range for such lasers and Jones discloses a range that encompasses the claimed range. Alternatively, it would have been obvious to one of ordinary skill in the art to select the particular claimed ranges through optimization of the known parameters, no unexpected results have been shown for the claimed ranges. Improved bond strength is the expected result from selecting the appropriate ranges for the particular materials used.

Applicant argues on page 5 that Ruotsalainen does not teach the parameters in claim 1. Jones was cited to meet the claimed parameters. Ruotsalainen is cited merely as an example in the art that it is well known to laser weld two articles from PET and/or PBT.

Applicant argues on page 7 that neither the Koshida reference nor the Jones reference teach nor suggest that surprisingly high weld strengths can be obtained between polyester compositions when the welding parameters of claim 1 are used. As discussed above, Jones discloses the claimed welding parameters. Furthermore, the high weld strengths are not considered unexpected results. One of ordinary skill in the art would readily appreciate that optimizing known parameters would result in providing the strongest bond between the particular materials used. (See MPEP § 2144.05 and 716.02)

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gladys JP Corcoran whose telephone number is (571) 272-1214. The examiner can normally be reached on M-F 8am-5:30pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Gladys JP Corcoran
Primary Examiner
Art Unit 1733

GJPC